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मानक

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“The Right to Information, The Right to Live”

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IS 4586-1-1 (1987): Dimensions of Spindles and Mounting Arrangements for Spindle Operated Electronic Components, Part 1: Spindles, Section 1: General and Definitions [LITD 3: Electromechanical COmponents and Mechnical Structures for Electronic Equipment]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

DIMENSIONS OF SPINDLES AND MOUNTING ARRANGEMENTS FOR SPINDLE OPERATED ELECTRONIC COMPONENTS

PART 1 SPINDLES

Section 1 General and Definitions

(*Second Revision*)

1. Scope — Covers definitions and general requirements for spindles for manual operation of components including rotary switches, variable resistors (potentiometers) and variable capacitors, tuning spindles and coupling spindles, primarily intended for use in equipment for telecommunication and in electronic devices employing similar techniques.

1.1 It does not cover sophisticated spindles, such as stepped-flatted spindles, and splined spindles.

2. Terminology

2.1 Spindle Length — The distance between the reference plane and the end of the spindle.

2.2 Bush Length — The distance between the reference plane and the end of the bush.

2.3 Stepped Flatted Spindle — Flatted spindles in which a portion of the flatted part is further milled to form a step.

2.4 Splined Flatted Spindle — Spindles in which a portion of the spindle length has splines cut on its outer diameter with a slotting along nearly the entire spindle length.

2.5 Tuning Spindle — A spindle, by the operation of which a pointer can be moved on a scale indicating frequencies and wavelengths or both, to which the apparatus is tuned and is also coupled to the relevant variable electrical components.

2.6 Coupling Spindle — A spindle of suitable length and fixing arrangement so that another spindle of standard dimensions can be fixed by the user.

2.7 Reference Plane — The inner face of the spindle head with reference to which all dimensions along the spindle axis are measured.

Note — This is a plane which normally rests on the mounting panel.

3. General

3.0 Essential dimensions and tolerances for different types of spindles and bushes shall be in accordance with the relevant Sections of this standard.

3.1 Dimensions apply to spindles after suitable finish.

3.2 Mechanical Fixing Devices — See Appendix A.

APPENDIX A

(*Clause 3.2*)

DETAILS OF MECHANICAL FIXING DEVICES

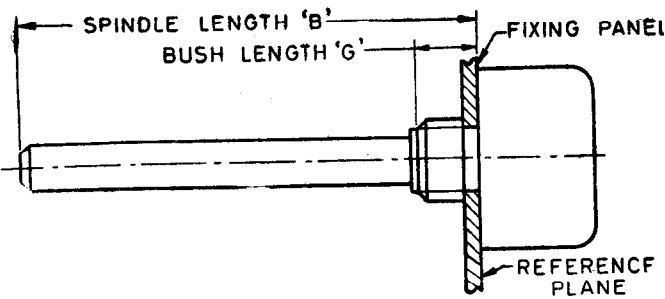
A-1. Fixing Arrangement — The following three types of fixing arrangements have been detailed in Fig. 1:

- a) Single-hole panel fixing (see Fig. 1B),
- b) Multiple-hole panel fixing (see Fig. 1A), and
- c) Chassis fixing (see Fig. 1C).

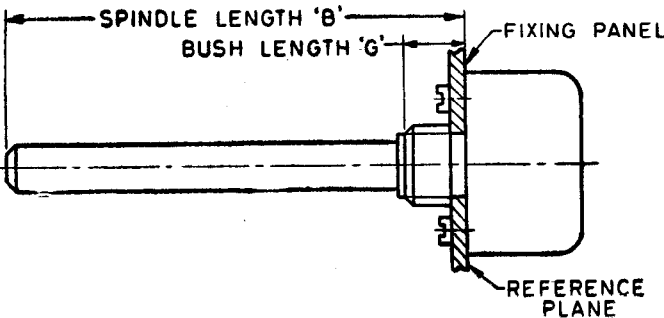
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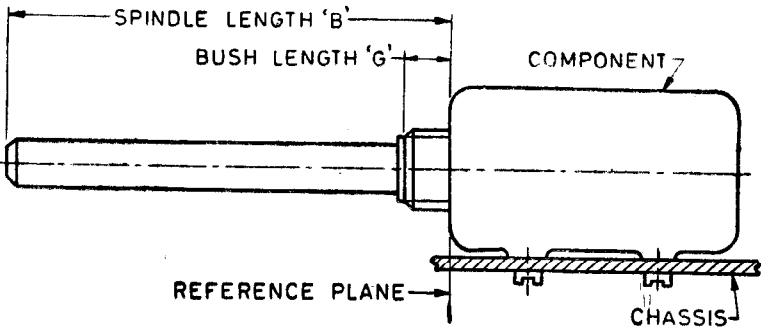
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1A Single-Hole Panel Fixing



1B Multiple-Hole Panel Fixing



1C Chassis Fixing

FIG. 1 TYPES OF FIXING

A-2. Dimensions of Holes — The preferred diameter of threaded hole (axial or radial) for fixing the component on to the fixing panel/chassis may correspond to the following screw thread sizes:

Spindle Diameter mm	Screw Thread Size See IS : 4218 (Part II)-1976*
—	—
3	M 1.6
4	M 2
6	M 3
8	M 4
10	M 5

A-2.1 For non-threaded holes, the hole size shall be in accordance with the relevant Indian Standard.

*ISO metric screw threads: Part II Diameter pitch combinations (first revision).

EXPLANATORY NOTE

The object of this Indian Standard is to specify the essential dimensions of spindles for manual operation of electronic components and to ensure interchangeability, variety reduction and easy fixing of the knobs, and also to provide mechanical fixing details for the mounting of single hole, bush mounted, spindle operated electronic components on the panel.

The standard was originally published in 1968 and revised in 1978 to align it with IEC Pub 390 (1972) 'Dimensions of spindle ends for manually operated electronic components', issued by the International Electrotechnical Commission. The second revision of Part 1 of the standard has been undertaken to include additional sizes of spindles for professional usage, such as for defence purposes and also to align it as far as practicable with IEC Pub 390A (1976) 'First supplement' to IEC Pub 390 (1972).

This standard consists of two parts, Part 1 covering different types of spindles, and Part 2 covering various types of mounting arrangements. Part 1 has the following sections:

- Section 1 General and Definitions,
- Section 2 Plain Round Spindle,
- Section 3 Flatted Spindle,
- Section 4 Slotted Spindle,
- Section 5 Hollow Spindle,
- Section 6 Coupling Spindle,
- Section 7 Concentric Spindle,
- Section 8 Double Flatted Spindle,
- Section 9 Knurled Spindle, and
- Section 10 Slotted and Knurled Spindle.